FUNCTION DESCRIPTIONS

Eaa2rotMat:

Inputs:

axis: Axis of rotation (does not care if it is a unitary vector)
angle: Angle in radians.

Outputs:

matrix: A 3x3 RotationMatrix.

Purpose:

Using the Rodrigues' Rotation Formula to calculate a Rotation Matrix from an axis and an angle in radians.

eAngles2rotM:

Inputs:

Phi, theta, psi (the three Euler angles).

Outputs:

r_euler_matrix: A 3x3 RotationMatrix.

Purpose:

Using the Euler angles composition to calculate a Rotation Matrix.

eul2quat:

Inputs:

Phi, theta, psi (the three Euler angles).

Outputs:

quat: A quaternion.

Purpose:

Using the Euler angles composition to calculate a quaternion.

GetQuatFrom2Vec:

Inputs:

u, v (Two 3x1 vectors).

Outputs:

quat: A quaternion.

Purpose:

Using a formula to calculate a quaternion from two vectors.

GetRotVec:

Inputs:

radius: A radius in radians.
x, y: Coordinates in the plane.

Outputs:

vec: A projected vector in the virtual sphere which will be rotated.

Purpose:

Projecting a vector in a sphere to calculate the rotations dragging the mouse.

q_product:

Inputs:

q_A, q_B (Two quaternions) to multiplicate.

Outputs:

q_C: The resulting quaternion.

Purpose:

Calculate by the qvq' system the product of two quaternions.

quat2eul:

Inputs:

quat (A quaternion).

Outputs:

eul: A 3x1 array containing phi, theta, psi in this order.

Purpose:

Calculate the three Euler angles from a provided quaternion.

rotM2eAngles:

Inputs:

euler_matrix (A RotationMatrix).

Outputs:

phi, theta, psi (The three Euler angles).

Purpose:

Calculate the three Euler angles from a provided Rotation Matrix.

rotMat2Eaa:

Inputs:

rot_matrix (A Rotation Matrix).

Outputs:

axis: A 3x1 array containing the axis of rotation.
angle: The angle of rotation (in radians).

Purpose:

Calculate the Euler principal axis and angle from a Rotation Matrix.

RotVec:

Inputs:

axis: The 3x1 axis of rotation.
angle: The angle in radians.

Outputs:

vec: A Rotation Vector containing axis and angle.

Purpose:

Compose a Rotation Vector with an unitary axis and an angle.